

## ABSTRACT

A signal compensation circuit compensates for direct-current offset of an input signal by amplifying the input signal with an amplifier having a variable direct-current offset. A low-speed negative feedback loop charges and discharges a capacitor in an integrating circuit according to the direct-current component of the amplified signal. A high-speed negative feedback loop charges and discharges the same capacitor at a faster rate when the amplified signal goes outside an allowable amplitude range. The capacitor potential is used to control the direct-current offset of the amplifier. The allowable amplitude range is adjusted according to the amplitude of the amplified signal. High-speed compensation can thus be combined with a tolerance for runs of identical code levels in the input signal.